Humble Street, Baytown Refinery — *By Jackson Lee Nesbitt*

The HUMBLE WAY

JANUARY-FEBRUARY, 1950

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PERCENTAGE DEPLETION

What it is
Why it was adopted
How it works

CONGRESS has recognized since the introduction of income taxes that some provision had to be made to protect oil and gas producers against unfair taxation compared with other types of business. In 1918, Congress provided that oil producers recover the discovery value of oil properties—that is, the capital value of the property after oil was discovered on it—even though such value might exceed the investment in the property. In 1926, Congress adopted percentage depletion as a simple and equitable method of carrying out the provisions of the 1918 Act which had become difficult to administer because of the large number of properties involved.

The percentage depletion provision of the income tax laws permits a producer of oil and gas to deduct 27.5 per cent of gross income, but not more than 50 per cent of net income, in calculating the amount subject to income taxes. This provision was adopted following a study by the Treasury Department of previous experience over a five-year period in which the charges allowed by the government for depletion on oil and gas production were more than 30 per cent of the gross value of the production. Congress chose a conservative rate of 27.5 per cent, which was substantially lower than the experience of the previous five years, as the equivalent of discovery value. It has since reviewed the rate of this allowance several times and always reaffirmed its conclusion that 27.5 per cent of gross income, limited to 50 per cent of net income, is the proper allowance for the depletion of oil and gas properties.

Recognizes Risks in Exploration and Production

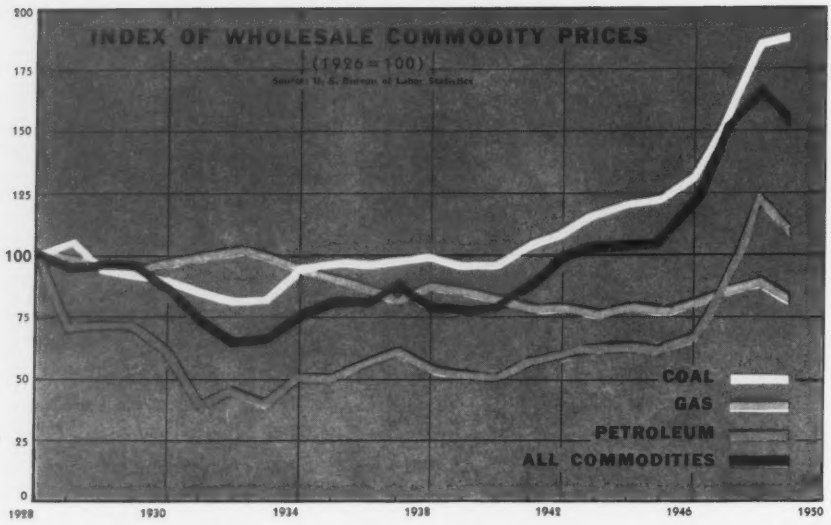
Congress adopted percentage depletion because it recognized the hazardous nature of searching for oil and gas. There is no special allowance made for refining, transportation, and marketing operations. These functions take only normal depreciation provisions like other businesses.

But there is a need for special treatment for the oil-finding end of the business. Four out of every five exploratory wells fail to find production. Of *all* wells drilled, one in every three is a dry hole. In the face of such hazards, operators would not risk their capital if they were allowed to recover only the cost of *successful* ventures.

Then too, the operator who wants to stay in business knows he must keep searching for more oil, lest he sell himself out of business as he depletes his wells. If only he could know within a fairly close margin, as a merchant or manufacturer does, what replacement oil will cost! But he does not, because the element of chance is so great. The only comparable industries are the various mining industries, and none of these is quite so uncertain as petroleum. For instance, coal operators know of the existence of large deposits and have some idea what the costs would be for establishing new mines. The oil operator has only a few clues as to the structural conditions which favor the accumulation of oil. He has to drill expensive wells to find out whether oil actually is there—*that is the only conclusive way to test a prospect.* It is because of these circumstances that Congress set the rate of percentage depletion higher for the petroleum industry than for any other mining industry.

The present rate of percentage depletion permits the operator to recover the capital he has created by dis-

Pumper opens valve on second oil well on lower deck of Grande Isle No. 1 drilling platform. Well at far left was being worked over in story on Page 17



covering and finding oil. The provision is necessary to enable producers to stay in a business which requires them to search for and develop every year, against considerable odds, as much oil and gas as they produce.

When it comes to investing large sums of money, few of us would like to face the odds of a one-in-five chance or even a two-in-three chance. Yet, operators engaged in oil and gas production must take such risks every day in searching for and developing new resources *if they want to stay in business.*

Today's cost to explore a new area and test it with "wildcat" wells is very high. Frequently a company must risk well over $1,000,000 to test an area. The cost of wildcat drilling alone probably averages about $75,000 a well for the industry, and is much higher than that in some areas. But only one in five of such wells proves productive. And even if that one finds oil, a considerable number of dry wells will be drilled in the process of defining the productive limits of the field. Right now, one of every three wells drilled by the oil industry is a dry hole, and the risks are increasing.

The taxation of operators who take such risks presents special problems. If they were taxed on the same basis as ordinary manufacturing and selling businesses, it would mean that they were being asked to operate on a basis where the government says, "heads I win, tails you lose." Since the oil operator must pay for all his unsuccessful wells, he expects to have that taken into consideration in the taxes he pays on the good wells. In order to give oil producers an even break compared with less hazardous businesses, the income tax laws must allow them to recover the capital which they create when they discover and develop new resources, and not merely what they put into the successful ventures.

There is another unusual characteristic of the business which calls for special treatment. In oil and gas production, as in mining of any natural resource, the operator is engaged in selling part of his basic asset. Part of his income, therefore, is the return of capital or a capital gain, rather than current income properly subject to the normal tax rates. For example, the income from the products of a machine shop would be subject to normal income taxes, but the realization from the sale of the *machines themselves* would not be subject to tax unless there were a capital gain, in which case the tax rate would be less than on current income. Tax laws are designed to permit the return of capital free of income taxes, and to tax capital gains at a different rate from ordinary income. This is another reason why special tax provisions are necessary on oil and gas production.

The depletion provisions for oil and gas production were adopted to provide fair treatment for this hazardous business and to take into account the fact that a substantial part of the revenue from production is the return of capital or a capital gain and not ordinary income properly subject to the normal tax rates. Congress also took into account that such provisions were necessary to protect national security and the interests of consumers by attracting an increasing amount of risk capital into the search for oil on the scale needed by an expanding economy. The value of these provisions to the people of the United States is demonstrated by the abundant supplies of oil that have been made available at low prices in peace and in war.

Has Stimulated Exploration

For about a third of a century, the tax provisions applicable to oil and gas production have been a major factor in stimulating the exploration and drilling necessary to meet the growing need for liquid fuels in our dynamic economy. In peace and war, U. S. output of liquid fuels has increased remarkably—it multiplied sevenfold between 1916 and 1948. This ample supply has been of incalculable value in American life; it has made it possible for us to produce more with less work; it has made low-cost transportation available to everyone; it has provided us with comforts and conveniences unheard of a generation ago; it has saved the nation both lives and money in two world wars.

Because of plentiful supplies, prices have been low. At service stations the price of gasoline, excluding taxes, was almost a cent a gallon less in 1949 than in 1926, a decrease of three per cent. Wholesale commodity prices generally *increased 69 per cent* during the same period.

Furthermore, the quality of gasoline is so much superior to that of 1926 that today's heavy, comfortable automobile operates at no greater fuel cost per mile than the lighter cars of a quarter century ago.

Change Would Mean Higher Prices

Percentage depletion has become an essential part of the economic structure of costs and prices in the oil business. For almost a quarter century it has influenced the

discovery, the supply, the cost of production, and therefore the *price*, of oil. It has promoted the discovery of oil and made large supplies available at low prices.

Cheap petroleum products have been of great benefit to our economy, particularly to the automobile, rubber, and highway construction industries. And because of the volume of business resulting from this expansion, the Federal Treasury has without doubt collected more taxes than it would have if the petroleum industry had been held back by unwise and unfair tax burdens.

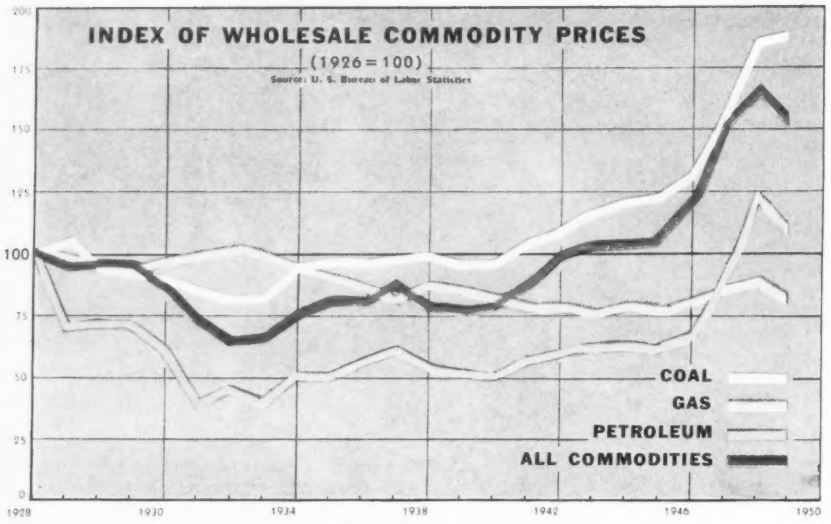
It follows naturally, then, that any downward revision of the depletion allowance would increase the industry's costs and similarly affect prices through its influence in reducing supply.

Oil Company Earnings Moderate

In spite of the exaggerated stories of quick riches in the oil business, the earnings of large oil companies have been low in relation to the capital they have invested in the business. If percentage depletion were unduly liberal, oil companies would show a higher net return on investment than other industrial concerns. A look at the figures shows the opposite to be true. The rate of return on stockholders' investment in oil companies has been less than for manufacturing companies. Over the past 25 years, profits of large companies in the oil industry averaged around seven per cent; profits for manufacturing corporations about nine per cent. Not only were average earnings lower for the oil industry, but the earnings in each year were lower with the exception of 1932.

Because of the unusual nature of oil and gas production, percentage depletion was adopted by Congress in 1926 to provide fair treatment for this business compared with others. It has operated to encourage exploration and development, thereby making available the abundant supplies of petroleum at low cost which are essential to our national prosperity and security. Oil and gas are so important to our way of life that no changes should be made which might raise prices or reduce supplies. For that reason, percentage depletion should be continued in effect at the rate that has proved to be right during the past quarter century.

Oil fields do not last forever. Operators must search for and develop every year, against considerable odds, as much oil and gas as they produce. The present rate of percentage depletion has encouraged this exploration and development.



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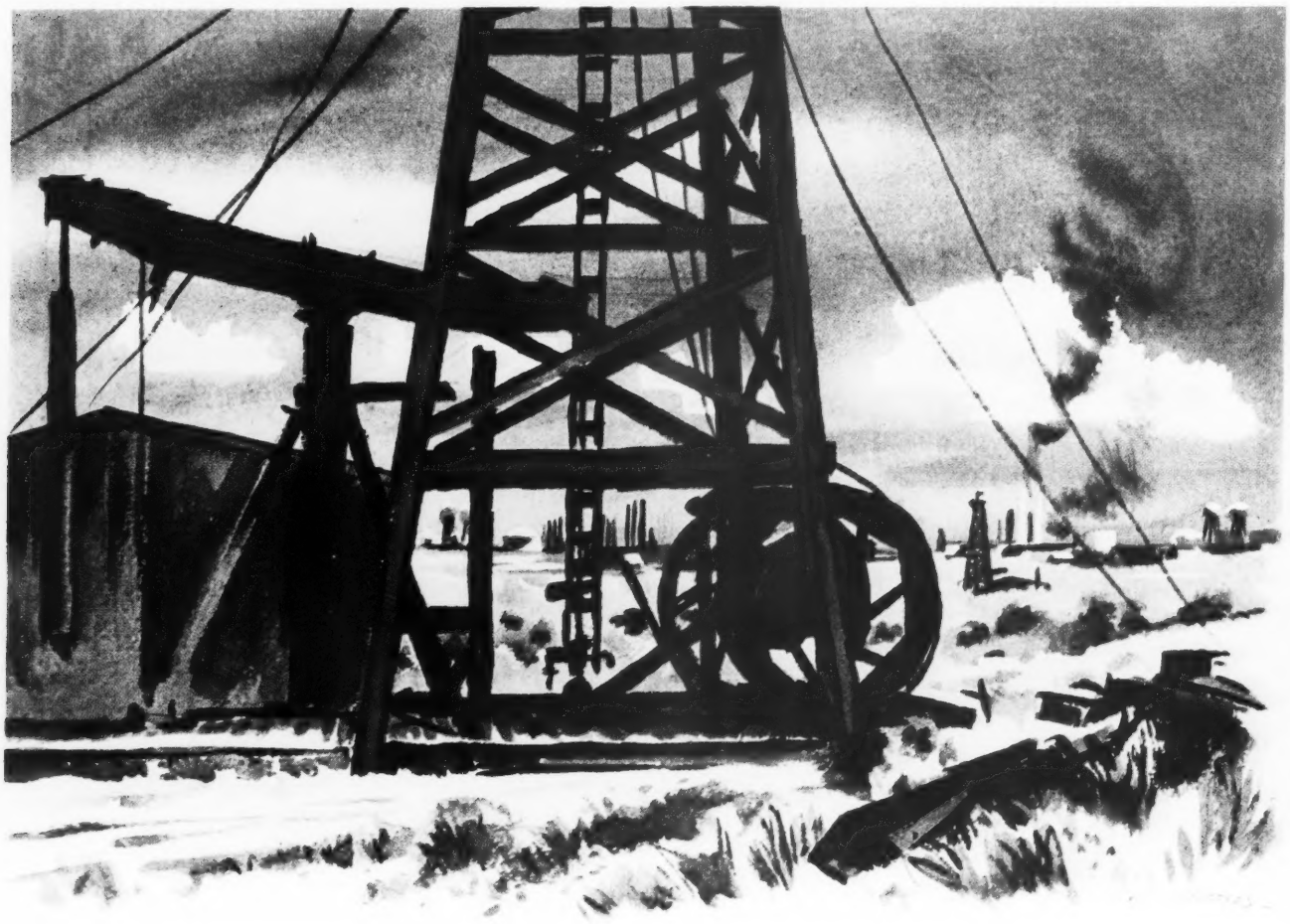


Management Round Table

Conference studies emphasize the concepts and functions of management, need for good human relations

"Management is the development of people, not the direction of things." That is the basic theme of Humble's course in Administrative Management now being conducted in Houston.

Development of people is a sound approach to any program of supervisory training, and Humble makes no exclusive claim to it. In fact, two significant trends during the past 20 years have shown most industrial executives the need for developing more leadership in their organizations. First, growth of business generally has brought a need for more supervisors and executives. Second, business has become far more complex; executives today must know more about a greater variety of subjects.

To be successful, a program of supervisory conferences must have the approval and support of top management. Humble's program in Administrative Management has that approval and support. Members of top management themselves take part in the course. President Hines H. Baker, Chairman L. T. Barrow, practically all members of the Board of Directors, and others bring messages on subjects of Company-wide interest to the groups. Of particular interest are talks on the Company's relations with employees, stockholders, the public, and the government. Not only does this material provide useful information; it also gives the participants an insight into top management's thinking on affairs and problems of the business.

Humble's course is attended by management groups full-time for one week, and men are brought to it from all areas of Company operations. Each group is made up of about 18 or 20 men selected by major department heads and by executives of Humble Pipe Line Company. In the beginning, enrollments were filled by key supervisors such as managers and their principal assistants. As the program progresses, however, it is being extended to include other levels of supervision. Members of the Training Division and others who conduct the course serve more as conference leaders than as lecturers or instructors, and discussions are carried on by the conference method. Although much of the material is on subjects familiar to those attending, it is presented in a manner that gives each man a better grasp of how his own jobs fits logically with others into Company patterns and policies.

The program has two main objectives: First, it provides training in supervisory principles, in order to stimulate an awareness of management's functions and point up the need for applying principles of sound management at all levels of supervision. Second, it focuses the attention of supervisors on the need for a sincere, impartial, and human approach in their dealings with individuals.

The first meetings take up the concepts and functions of management. The concepts of management, as outlined by conference leaders and discussed by the groups, are three-fold: (1) Management must be based on *sound principles*. (2) It must be *conscious* of the effects of its decisions and actions on others. (3) It must be *cost-conscious*.

After the concepts of management are covered, the functions of administrative management are discussed in detail. These functions are defined as: forecasting, planning, organizing, coordinating, directing, and controlling. To encourage individual participation in the discussions of each function, "case histories" are introduced. A theoretical case is set up to spotlight some problem in management. After everyone in the group has studied the case, individuals are given an opportunity to tell what they would have done under the same con-

ditions—and to explain *why* they would have done it. Ideas are exchanged, policies are clarified, divergencies of opinion are brought to light, and some very lively and enlightening discussions ensue.

Hewing to the line of its guiding philosophy that management is primarily the development of people, the second half of the program is devoted almost entirely to the need for good human relations in everything a supervisor does. There are discussions on successful supervision, foundations for good relations, what employees want, improving personnel management, conducting meetings, and related subjects. It closes with this significant challenge: Humble was built by sound management. The job of present management is to maintain and improve the Company's record by applying sound management principles and by practicing good human relations.

The present Administrative Management agenda has an interesting history; its story is one of gradual and careful development over a long period of time. The need for it, or something like it, has been recognized for years. As soon as practicable after World War II, Training Division people went to work on the problem. They studied and sifted executive

training programs offered or being considered by others. They used the best applicable features they had studied outside the Company, added new features of their own, and drew ideas from other Humble people.

In 1948, Humble Pipe Line Company management at Midland invited Training personnel to visit with them and discuss a medium for developing supervisors in the West Texas Division. Some five weeks later, as a result of the plans that followed that meeting, a program of conferences was given a "trial run" at Midland and was repeated for Pipe Line district management at McCamey and Odessa. Thereafter, at monthly intervals, the conferences were held over a one-year period for management in the West Texas Division of Humble Pipe Line Company.

Experience gained from these early efforts was useful in laying the foundation for the current program. As material was changed to fit more clearly and logically the job it was designed to do, a recommendation was made to hold the conferences for Humble's *entire management group*. This called for still more revision. A trial program was prepared and presented to top executives at Houston in July, 1949. They approved it, with minor changes, and approval of the Board of Directors soon followed. With 18 or 20 men in each group, it is expected to take about two years for all eligible people to participate in the conferences.

The value of Humble's conferences in Administrative Management may be measured by some typical comments:

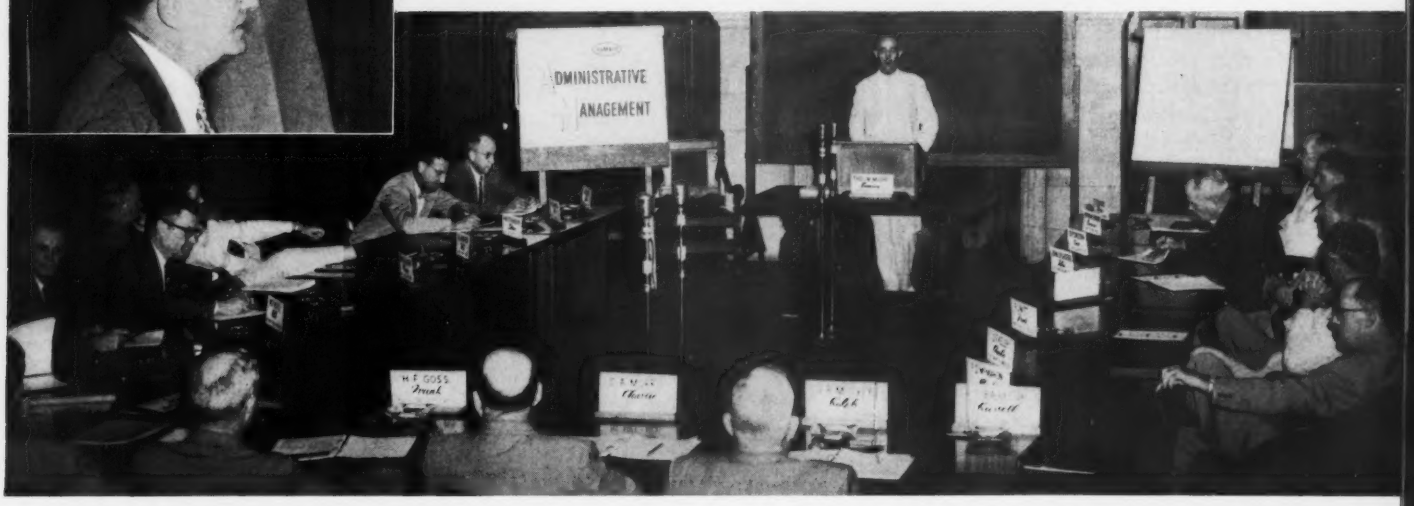
"Wish I had taken it 20 years ago."

"While some of us have been doing these things for years, the course puts order and continuity into their use."

"A good thing to take stock once in a while."

"Major benefit arises out of taking time to think definitely about management problems and to share experience with others."

One man reflected thoughtfully: "I have learned things that will benefit me the rest of my working life. The course has provided me with the clue and guide to some of my shortcomings. The rest is up to me."



President Hines H. Baker opened first session of conferences. Supervisors discuss problems and learn more in conference (below) about directing work of others.

Rust Banned

Mighty earth-moving dozer powered by aircraft engine from wartime P-38, has tires eight feet in diameter. Aircraft engines also power large earth scrapers.

The story of Humble's new rust preventive for aircraft engines

"We have nearly 3,000 aircraft engines, and we'd like to take care of them. Can you help us?", asked an official of a company which makes heavy earth-moving equipment. He pointed his question at the Humble lubrication engineer who had supplied technical assistance before. The job was to keep the engines from rusting while in storage before they could be installed in new super earth-movers that can move 50 cubic yards of earth at a time.

Tests had just been completed on a brand-new product for preventing rust in aircraft engines—Humble Rust-Ban 626. It had proven superior to other rust preventives, and was ready for use. The men at the earth-mover company tried Rust-Ban 626, liked it, and preserved all of their engines with it.

All of this happened 15 months ago—and none of the engines have shown signs of rust. That alone is exceptional, because until that time aircraft engines could seldom be stored more than two or three weeks without rusting. This month the earth-mover people are processing 200 more engines—these from navy PT boats—with Rust-Ban 626.

An international airline—one of the world's largest—is using this new Humble product for preserving new and newly-overhauled engines. The airline's maintenance chief was especially pleased with it, since he can now send engines to humid tropical stations without danger of their rusting. Engine overhaul shops in the Southwest have also changed to Rust-Ban 626.

This new product worked so well for preventing rust in aircraft engines that it has been adapted for all internal combustion engines — for autos, commercial engines, and farm machinery—as Humble Rust-Ban 623.

A good aircraft engine rust preventive isn't just "something that keeps the metal from rusting." True, that's the main idea, but there are several conditions that must be taken into account.

The main job of a rust preventive is to seal off steel engine parts from attack by moist air. This is done most effectively when the parts are covered with a tough thin film. On the outside of the engine, it's a simple job. Inside, it's almost as easy if the rust preventive is added to the engine oil. Then, as the oil lubricates and cools the inner parts of the engine, the rust preventive in the oil coats the parts with a film to seal off the air and corrosive vapors. The special job of the rust preventive is to leave that film and retain the high lubricating quality of the oil—and protect the engine bearings. The engine oil is a "carrier" for the rust preventive.

The new Humble Rust-Bans may be obtained as a concentrate or blended with two different grades of Esso aviation oil. Humble Rust-Ban 626 is the concentrate. Rust-Ban 624 is the concentrate blended with 1100 aviation oil, and Rust-Ban 625 is the concentrate blended in 1120 aviation oil. The blends are one part concentrate (Rust-Ban 626) and three parts oil.

The cylinders are the critical corrosion spots in an engine. Lead salts, left when high octane gasoline is burned, accelerate the formation of rust on the shiny cylinder barrels. Rust-Ban is sprayed into the cylinders to protect the cylinder barrels and valves. This, incidentally, sets up another requirement for the rust preventive. When the engine is "run in" after being stored, the rust preventive in the cylinder must not foul the spark plugs nor leave ash deposits on the cylinder head.

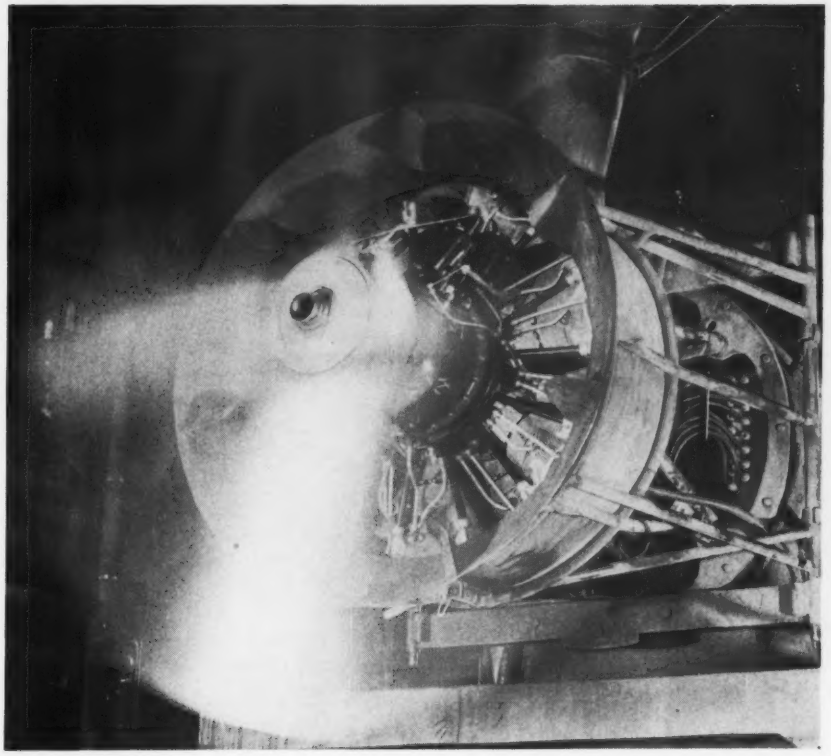
The rust preventive must be a "fly-

away oil," too. That is, the rust preventive must permit the engine to be flown without difficulty for 50 hours or more. The fly-away qualities of Rust-Ban 626 were proven by test-running two engines for 50 hours at full rated power. Rust-Ban 626 survived that grueling test with ratings far superior to other rust preventives.

On the 3,500 horsepower engines of the mighty B-36, test engineers have reported "no ash" after flights with Rust-Ban 626. Since there is no sodium in Rust-Ban 626, there is no fouling of the spark plugs. On the B-36, metallic sodium and its compounds from regular rust preventives caused frequent spark plug trouble.

Rust-Ban 626 contains no sodium sulfonate or toxic additive, and is not harmful to the hands in any way. In addition, it is unaffected by ordinary changes in temperature.

The big problem of preventing rust came with the development and widespread use of 100-octane leaded aviation gasoline. It was a problem to all services, since airplane engines powered planes, tanks, and PT boats. Before 1940, most aircraft engines were in frequent use and the low-octane fuels generally available did not encourage corrosion. With the boom in air power for World War II and the standardization on 100-octane gasoline, the need for rust preventives grew. The rust preventives developed then did a good job—until the petroleum chemists began juggling the components of 100-and-higher-octane gasolines. In their effort to squeeze every drop of 100-octane from a barrel of oil, and to get every ounce of power from the engines, they changed the ingredients of the gasolines. The standard rust preventives could not prevent rust long where many of these fuels were used. By 1945, with the very best of treatment, engines treated with the standard rust preventives would rust within a week.



Aircraft engine is run on test block after overhaul. Rust preventive, added to engine oil, will also be sprayed into carburetor during final part of the run.

The story of Rust-Ban 626 really began three years ago when a Humble drilling mud engineer returned to the Company after four years in the Army Air Forces. He had spent most of his service time in engine overhaul depots, at a time when one-fourth of the engines overhauled were rejected because of rust. Ninety-five percent of one group of several hundred engines rusted within four months after overhaul. The problem wasn't new, nor was it peculiar to one station. It was a bugaboo to the armed forces all over the world.

Chemist shows engineer a test sample treated with Rust-Ban 625 after it has been exposed to humidity cabinet temperature of 120 degrees and 100 percent humidity.

The mud engineer returned to the Company's Sales Technical Service Division, convinced that a product could be developed that would stop rust. He sold the idea to his supervisors, and within a month tests were going ahead on a better rust preventive.

The additive to the engine oil had to be hygroscopic—"Had to absorb moisture from the air," explains a chemist, "because the scavenging agent in the 100-octane gasoline left salts that formed hydrobromic acid when the moisture in the air condensed." A scavenging agent is blended into the gasoline to cause some of the products of combustion to hurry out of the cylinder and make room for the fresh fuel mixture coming in for the next explosion.

Several kinds of additives — all called by six-syllable words—were tried. Other chemists had tried one additive in small amounts, but there were no data on mixtures in large concentrations. The Humble chemists went ahead in their experiments and found that the additive could be mixed in heavy concentrations.

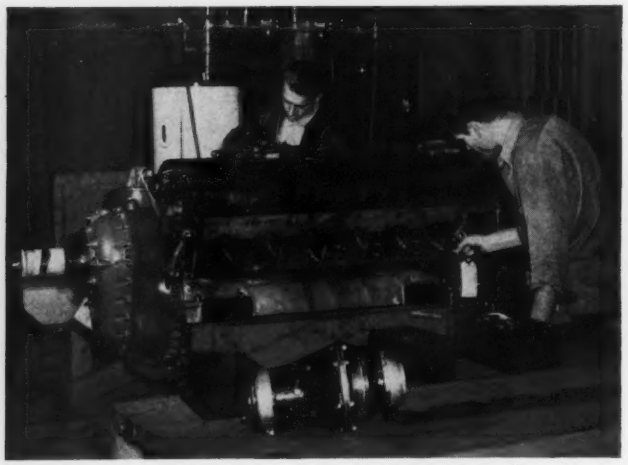
Each time a new mixture that could survive the humidity cabinet test was found, it was tested on newly-overhauled engines. The engines were then checked on the first day, then the third, fifth, and tenth days after treatment; then every week. The results were recorded, and the test compound was modified to improve performance. At the same time, they ran a check in the humidity cabinet.

Tests were made using the conventional method of preparing an engine for storage. After running the engine with the rust preventive in the oil, the cylinders and valve mechanisms were sprayed with the compound, and moisture absorbent bags were placed on the engine. The engines were then sealed in the regular air-tight bag and crated.

After 30 days the engines treated with the standard rust preventive were severely rusted. Those treated with what is now called Rust-Ban 626 had no traces of rusting. After 104 days these engines were still rust-free. Later tests have proven engines free of rust *more than a year* after treatment.

In testing and proving Rust-Ban 626, approximately 65 engines were used. This large number was used to make the tests as exhaustive and conclusive as possible. They proved the

Radial engine, after being run on the test block, is treated for storage. Here Rust-Ban is being sprayed into cylinders.



In-line engine from P-38 airplane is treated for storage. Later this engine will be installed in a large earth-mover.

product equally effective, whether used with leaded or unleaded gasoline.

The Humble chemists were surprised by some of the results of the new compound. They found the new additive in Rust-Ban 626 actually reduces the ash of regular engine oil. The tests proved the ash very low, and it is rated at .009 percent—practically none.

Proving the qualities of Rust-Ban 626 took more than two years. It was submitted to the Air Force for approval as a rust preventive and passed the requirements with an unusually high mark in every category. Here was verification of the Humble men's conclusive tests and claim that it was many times better than standard rust preventives.

The requirement for the humidity cabinet called for a steel sample treated with the compound to remain rust-free after 150 hours. The samples treated with Rust-Ban 626 had no sign of rust after 456 hours—19 days! It was taken out of the cabinet then only because the cabinet was needed for other tests. The hydrobromic acid test also made in the humidity cabinet had similar results.

Navy approval was forthcoming, and Rust-Ban 626 is listed under Specification AN-VV-C-576b.

Engine manufacturers learned of the tests and became interested. Overhaul shops were interested. And then came the request from the earth-mover company. For continuous storage in a really large number of engines, Rust-Ban 626 has received its longest test—15 months—in engines from P-38's and P-51's.

B-36 engine is wrapped with metal foil after storage treatment is completed. Foil is air-tight, keeps moist air from attacking metal during storage period.

The men who have used Rust-Ban 626 are in accord: "It's by far the best we've used." "It's easier to handle and does the job." "We like it."

Queries about the new product have come from many places, one from Sweden. The Humble Rust-Ban salesmen have taken over the job of selling the new products, and arrangements are being made to market them all over the United States.

A new group of products has been added to the Humble Rust-Ban line—and it is now possible to preserve internal combustion engines for long periods without rusting. But the men who developed these products aren't satisfied—they're working on improvements which will make metals safe from corrosion longer, and will be easier to apply.

Oil Serves in Many Ways

The owner of a small meat packing plant in Switzerland was having his troubles. His hydraulically controlled machine would not turn out sausages of uniform length. At the beginning of each day the links would be the correct size, but as the plant and machine heated up they would get longer and longer.

At last he called in a lubrication engineer who pointed out that as temperatures increased the oil would thin out with a resultant drop in the hydraulic pump pressure. This, plus some pump slippage, caused the operation to be sluggish, thereby cutting longer links. UNIVIS 40 was recommended for use in the hydraulic system. This product has relatively low tendency to change viscosity with temperature changes and an extremely low pour point—qualities which permit its application over the widest possible temperature ranges.

The resultant uniformity of operation insured equal length sausages and solved the plant owner's problem.

Better Products and Lower Prices from

COMPETITION IN REFINING

WHAT would *you* think in this case?:

Let's say you have been manufacturing the same principal product for 25 years. You have steadily improved quality until now you have a better product than ever before. While you were improving your product, your cost of raw materials has gone up one third and your labor costs have more than doubled. Besides that, you've invested large sums of money in research and in new equipment to do a better job. Now here's the question:

To stay in business today, and make a profit, would you expect that it would be necessary to sell your product for

a. A higher price than 25 years ago?

b. A lower price?

c. About the same price?

The answer seems perfectly clear, doesn't it? If logic means anything, it would seem you would have to sell for more today, if you expect to stay in business. But fortunately for American motorists, it hasn't worked that way in the oil business. The wholesale price of gasoline, the principal product of refineries, is less today than it was in 1926.

Since 1926, petroleum refiners in the United States have raised the octane number of regular grade gasoline from 50 to 76.4, measured by the motor method. They have invested billions of dollars in equipment and research to make that improvement possible. During the past 25 years, the refiner's cost of raw materials has increased one third and his labor costs have more than doubled. *Yet refiners today are selling their principal product, gasoline, for less money per gallon than they received 25 years ago!* Retail gasoline prices are slightly higher today, but not because of the wholesaler—the increase has come in *added taxes and increased transportation costs.* The wholesale price is actually *lower.*

There are two good reasons for that rather startling fact: (1) Competition and (2) improved technology brought about by better equipment and processes. Actually, those two reasons are closely related; competition leads to improved technology. To get ahead of competitors, each refiner uses the newest methods and equipment and makes the best products that his means and ability will allow.

Just what does the influence of competition on petroleum product quality and price mean to you? Look at it this way, for example: In average figures, a manufacturing employee could buy 2.6 gallons of 50-octane gasoline with one hour's pay in 1926. Today, he can buy 5.2 gallons of 76.4-octane gasoline with the same amount of work. That states the case for competition in refining. Many companies, aggressively competing for their share of the gasoline market, are locked in a struggle that benefits you by giving you more for your gasoline dollar than ever before.

Refiners, of course, are interested in making a profit. They have to make a profit, to stay in business. But they can afford to sell better gasoline at a lower price now than in 1926 for two reasons: First, they have learned to get more gasoline out of each barrel of crude oil. Second, by investing large sums in equipment and processes, they have raised the output per employee. The yield of gasoline per barrel of crude oil has been increased from 35 per cent to 44 per cent since 1926. These factors have made lower wholesale prices possible during the past 25 years, even though trends in raw materials and labor costs are up.

Here are some facts that point up the degree of competition in petroleum refining. There are several hundred different companies in the oil refining business. These companies operate 374 different plants in 37 states. No one company controls as much as 15 per cent of the total U. S. refining operations. It takes six of the largest companies to account for half of the refining operations in this country, and 13 companies to account for 75 per cent of the total.

Baytown Refinery, like many large refineries, is located near the coast to take advantage of water transportation. At upper left are competitive refineries. Other competitors are located in this area, but are not shown in the picture.

Compare this situation with other mass production industries, and you will find that generally the four or five largest companies account for at least 70 per cent of the total business.

Large refining companies are constantly engaged in a fierce competitive struggle for the same business. In every important marketing area there are at least half a dozen large companies and many small ones that supply refined products. Each of them realizes that a gain in volume tends to reduce his unit costs, and is very anxious to get new business. Their struggle for markets explains the progress that has been made in refining operations, and shows why the benefits of that progress have been passed on to the consumer.

Until the end of World War I, petroleum refining was largely a simple distillation process that separated the various components of a barrel of oil. Refining has changed radically since that time; today it is a highly complicated chemical operation which *completely alters the components.* By changing the chemical structure of components, products can be precisely "tailor made" to fit the market demand. Of course, it takes a great deal of money for equipment to make these "tailor made" products and fit them into changing demands for different products.

Refineries naturally try to keep for themselves the benefit of improvements which reduce costs or make products of superior quality. Every time one refinery gains such an advantage over its competitors, however, pressure is increased on the others. They, in turn, work toward the development of comparable or even

better equipment and processes that will give *them* a competitive advantage for a time. One such advantage is that the leader can sell a better product for the same price as his competitors, and so attracts more customers. Competition thus forces all refineries into a never-ending race.

Pressure on refineries to sell the same quality product at the same price is great, because gasoline is a product which most buyers consider of practically identical quality. There are price differentials in the wholesale market for differences in quality, but products of the same quality move at about the same price. Wholesale purchases of gasoline are generally made in thousands of barrels, so a fraction of a cent's difference per gallon means a large saving for the purchaser. In the wholesale market, therefore, refined products prices necessarily tend to reach the same level for a standard quality at a given time.

The same circumstances which bring about uniform wholesale prices for gasoline at refineries in a given area also account for uniform bulk prices for gasoline in tankwagon lots. Principal marketers selling the same quality product supply different service stations. The station owner can and does change the brand he handles from time to time, depending on the offers made to him by competing wholesalers. Therefore, if he has a choice of different prices for several brands of about the same quality, he will choose the lowest priced brand. This exerts a terrific pressure on wholesale marketers to sell at the same price. Occasionally, prices may vary for a short time, but if the difference persists very long, dealers will leave the high-priced wholesalers for the low-priced one, and prices will be forced back to a uniform level.

Significantly, most people today do not want the *cheapest* gasoline. The majority of them want the best gasoline that can be had for reasonable prices. Today's high octane fuels mean more speed, greater efficiency, and driving comfort for the motorists. A gallon of gasoline in 1950 takes a heavy, modern automobile with its powerful motor just as far as a gallon of inferior gasoline took the light, rattling "tin lizzies" of 1926. It would be easier, and far cheaper, to make 50-octane gasoline today. But motorists wouldn't buy it, and the new automobile engines couldn't use it. As a matter of fact, it is the vastly improved quality of gasoline that has allowed automobile manufacturers to make more comfortable cars to suit present tastes for better travel.

Dealers recognize that gasoline quality has an influence on their sales volumes. In practically every large community, there are small as well as large marketers selling gasoline to service stations. Generally, the local brands sells for several cents less than the well-known brands of large marketers. If the price spread is too great, those who sell the well-known brands at wholesale frequently must reduce their price to avoid loss of business. In short, the small refinery and local wholesale marketer often determine the price level for the entire industry.

The tendency toward uniform prices for the same quality products in the petroleum industry has been wrongly interpreted as an indication of lack of competition. The facts are quite different. It is competition that brings about those uniform prices! The current low level of prices in relation to raw material costs and manufacturing expenses is strong proof of competition at work for you in the refining business.

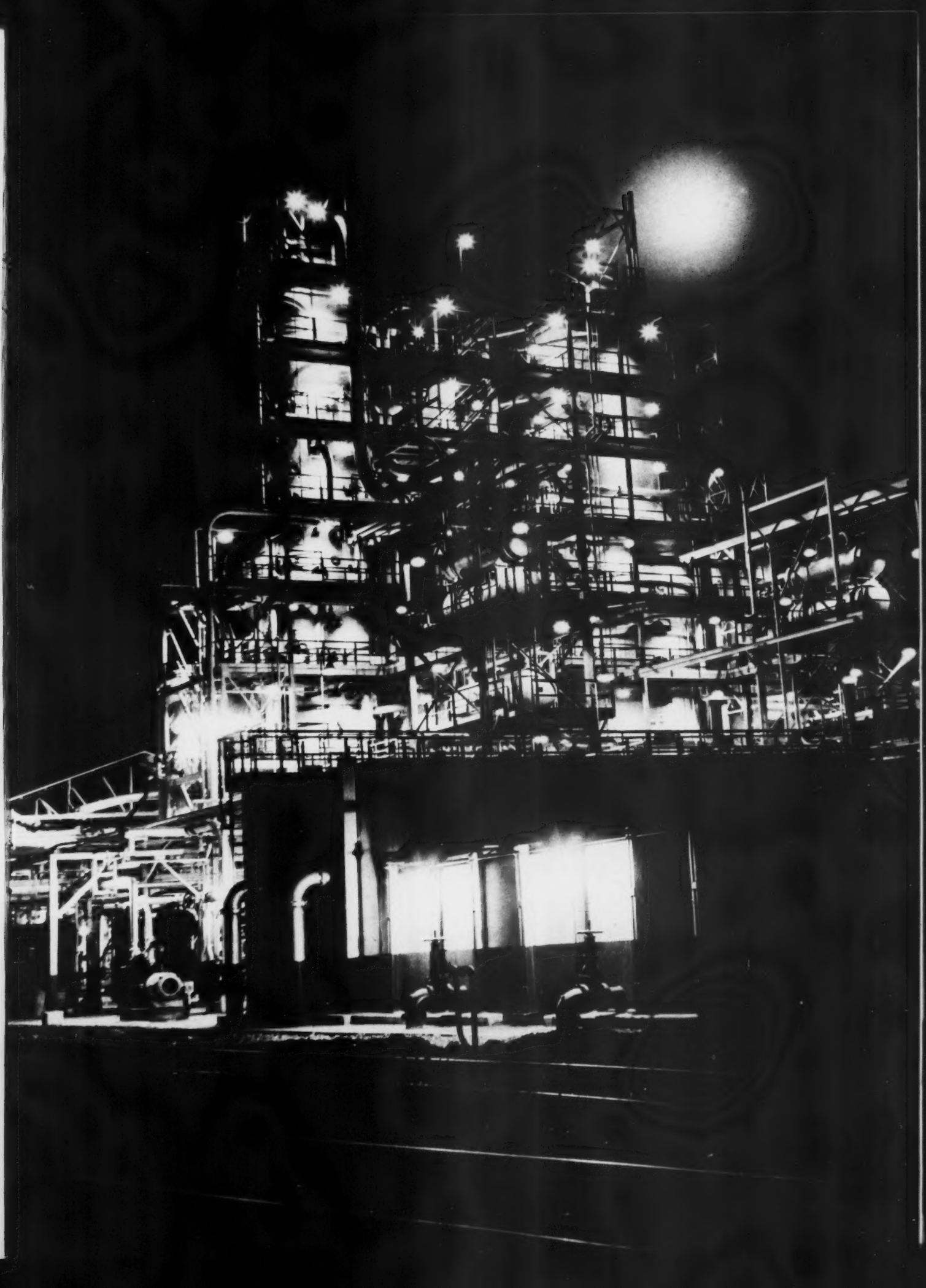
Modern Refining Equipment Illustrated

Jackson Lee Nesbitt of Kansas City, whose fine tempera work has appeared from time to time in THE HUMBLE WAY, painted the front cover and the center spread for this issue. As subjects for both paintings, Nesbitt chose interesting patterns formed by modern equipment at Baytown Refinery. The importance of that equipment in producing quality gasoline at reasonable prices is emphasized in the article above.

The front cover significantly illustrates refining progress by showing the old and the new in "cracking" processes. At the upper right are towers of the old Thermal Cracking Coils. In the center background rises the impressive steelwork of Fluid Catalyst Cracking Unit No. 2, which cracks petroleum by a newer and more efficient process.

At first glance, the center spread on pages 14 and 15 is "art for art's sake." It does show beauty in the oil business, but it also points up the importance of storage tanks in a large refinery and the need for various types of tanks. The onion-shaped tanks are built to withstand some vapor pressure; higher pressures are controlled with spherical or "ball" tanks. The red tanks at left hold crude oil or lubricating oils.

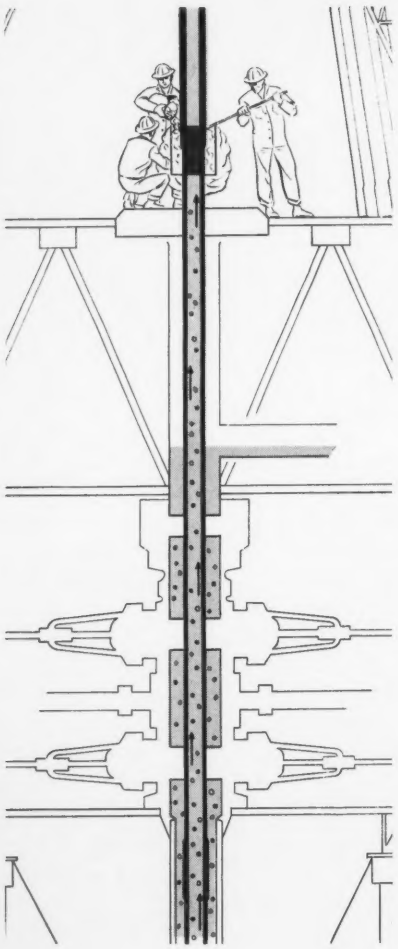
On the opposite page stands Pipe Still No. 4, Baytown's newest unit for distilling crude oil. Old method of distillation was carried out with "shell stills," and there are still a few of these at Baytown. But Humble's shell stills gradually are being replaced with more efficient pipe stills, which do a faster and better job.



Hour Before Sunset

Jackson Lee Nesbitt

Stop-Gap with Dry Ice



Frozen mud (solid color) sealed off drill pipe; three sets of blowout preventers sealed area around pipe.

The history of drilling for oil is full of stories of how drilling crews have mastered difficult wells with impromptu methods. It is oil field tradition to find the answer to every problem, as quickly as possible.

Recently, on Humble's Rig 36, drilling crews and engineers used dry ice to prevent a threatened blowout after other efforts had failed. The threat was controlled by using dry ice to freeze a solid plug of drilling mud in the drill pipe until a positive shut-off could be installed.

The discovery well on the Company's big $1,250,000 platform was being worked over. It was Humble's first offshore well, originally completed at 8,640-65 feet in August, 1948. While pulling the drill pipe out of the hole, the pressure of the oil and gas in the reservoir overcame the weight of the drilling mud in the hole and the pressure began to push the mud out of the well.

Immediately, the three sets of blowout preventers were closed to seal the space between the well casing and the drill pipe. Then the 540 feet of drill pipe still in the hole was capped by the kelly joint in the normal way for drilling. This sealed the well, and the pressure climbed to 800 pounds per square inch on the mud gage.

The solution was to fill the well with heavy drilling mud. To do this, more pipe had to be added to the drill string to move the bottom of pipe to the bottom of the well. Then, heavy drilling mud could be pumped in to control the pressure of the reservoir. But the top section of drill pipe would have to be unscrewed under pressure.

A tool had not been developed to shut off the pressure within the pipe, but a man came up with the idea of freezing a plug in the pipe. It had been done before on Humble wells, once in Galveston Bay, using dry ice with a temperature of 110 degrees below zero.

Twice they pumped fresh water into the pipe and packed the dry ice in a can around the outside of the pipe. Each time oil and gas bubbling up through the water prevented it from freezing.

On the third try, very viscous bentonite (clay) mud was pumped into the drill pipe. The dry ice was pulverized and tamped tightly about the pipe. The freezing area was moved up the pipe to place the ice plug opposite a shoulder inside a tool joint.

After two hours of constant tamping, a test was made. The plug held, and the crew quickly broke out the kelly connection and made up a joint of pipe which had a positive shut-off. The difficult part of the job was done.

The remainder of the drill pipe was made up and lowered through the blowout preventers to the bottom. The plug in the drill pipe was then drilled out, and heavy drilling mud was pumped in to control the pressure and quiet the well.

The workover was completed successfully, and now the three oil wells on the platform are producing a combined allowable of about 700 barrels daily.

Rig 36 crewmen pack dry ice tight around drill pipe during efforts to freeze solid mud plug to hold pressure inside pipe.

BUILT FOR SERVICE

Service station sites carefully selected; buildings planned for beauty, utility; staffs trained to help motoring public

HUMBLE service stations aren't built just because the Company or an individual suddenly decides to build one. Each is a business venture designed to perform a worthwhile service to motorists and earn for the Company or the individual a fair return on the money invested. To make sure that its stations will meet these requirements, Humble has developed a businesslike formula for selecting a station site, building the structure, and training its manager.

Although the majority of stations selling Humble products are built by individuals who operate them as independent merchants, the Company takes just as much care helping to develop lease and dealer outlets as it does Company-owned stations. As business enterprises, these stations must provide their manager and station salesmen with large enough incomes to enjoy good standards of living; often they are lifetime professions for the operators.

It takes a lot of things to make a good service station. Quality products are a very important consideration, of course. More than that, survey after survey has proved that most people trade at service stations which are located conveniently to their homes or to their places of business, and because they like and have confidence in the station operator. Advertising media such as newspapers, the radio, billboards, or talking with neighbors may attract a motorist to a station in his neighborhood. But once he stops, he becomes either a regular customer or just a one-time visitor, depending upon the quality of the products and standards of service he receives. If the operator shows himself to be a good neighbor, a reliable and businesslike merchant, chances are good that the customer will continue to do business at his station. If not, the potential customer will go somewhere else. Service stations, therefore, may often be located to good advantage along a motorist's normal line of travel between residential and business or community shopping areas.

For example, you may have driven past a vacant lot in your neighborhood dozens of times and thought to yourself: "That would make a good site for a service station. Sure would be convenient for me, because I wouldn't have to go so far out of my way for service." Then one day you

see a service station being built on the lot. Someone else has been giving that plot of ground, among many others, some careful thought, too.

Now if it's going to be a Humble station, a fine-comb analysis of the neighborhood in which the site is located has been made by field men, a real estate coordinator, and Humble's Sales Department budget committee. Since Humble stations are long-term investments, answers to these questions have been weighed carefully: Does Humble need a station to better serve its resident and transient customers in that neighborhood? If the studied answer is yes—first, second, and third choices of a location for the station are considered. The next question to study is—Will the Company or the individual who builds the station be able to earn a fair return on the investment? Will it provide secure employment and adequate income for those who manage and operate it?

Long Range Forecasts

Large up-to-date maps maintained in both the field and Houston offices show present highways and those proposed or considered for the future, major and secondary streets, schools, community shopping centers, industries, present and potential residential sections, and the locations and types of Humble and competitive stations. Long range forecasts on prospective sites are made by studying these maps carefully, and by having division, district, and local personnel inspect the areas under consideration. Traffic counts, pictures of the site, and aerial views of the area all receive particular attention.

When construction begins, if you are like most folks who follow the progress of a construction job in their neighborhood, you will be interested in watching the station take shape. Some of the men on the job are Sales Department engineers who supervise the construction closely to see that plans are correctly interpreted and followed. Safety measures must be observed to minimize fire and accident hazards and to safeguard neighborhood children as construc-

Scale models are used by Sales Department engineers to help them plan stations to be built of the most modern materials—emphasizing beauty as well as utility.

Traffic counts help determine how many customers a station may serve.

Aerial views are studied closely so that the best location may be selected.

Near completion, this station represents many hours' careful research, planning, and construction supervision. Arrangements for opening day have already been made.

tion progresses. Notice how carefully engineers test gasoline tanks for possible leaks, and how they check and recheck every piece of equipment for perfect operation.

Some days you will notice a neatly-uniformed Humble salesman watching the station's progress proudly. When you talk with him you will learn that he has been spending a lot of time at one of Humble's training stations getting ready to become manager of this new station. He will want to show you around, of course, and you begin to share his enthusiam as he tells you about the attractive tile rest rooms and many personal services that are in store for his customers.

Some stations offer such special services as vacuum cleaning equipment for removing dust and dirt from the inside of automobiles quickly and efficiently. Occasionally an unusually alert station manager will keep a hot plate handy to warm bottles for mothers who are traveling with small children. A few dealer stations which are located on main highways where truck traffic is heavy are equipped with showers. One station in Kerrville has portable air conditioning equipment which warms or cools the inside of an automobile quickly, and another keeps special bowls filled with fresh drinking water for the family pet, while many others keep a vase of flowers in the ladies rest room.

Plans for Opening

Long before the station you have been watching is ready for occupancy, Humble's Sales Promotion group has made plans for publicizing the opening, decorating the station, and handling traffic. Nearby Humble agents and dealers are ready to help their new associate get off to a good start in every way possible —knowing that there will be a close relationship between his future and their continued success.

Finally, opening day arrives and you can judge the new station's merits for yourself. You will also see how really interested Humble people are in helping you get acquainted with them and their way of doing business. Station salesmen have visited neighbors for days to invite them to the opening. Employees in no way directly connected with the station have asked their friends to drop by. Newspaper advertisements and radio announcements have invited the public to attend. Handbills and personal letters have been distributed.

Cars Line Up

Early on opening day, visitors begin to arrive and they will keep coming all day long. When you get there, you will know that something big is taking place. The whole neighborhood will seem to have converged on that one point. Automobiles are lined up, bumper to bumper, a block away from the pennant and bunting decorated station. Balloons fly gaily overhead. Courteous police officers are directing a steady flow of traffic into and around the station to prevent tie-ups. Company representatives are on the driveway to help welcome visitors, serve them refreshments, and present them with souvenirs. Children puff happily at balloons, and the women either wear or carry flowers they have received. There are key chains for the men. The salesman you have been talking with for the past several weeks will be particularly happy to see you because you have shared the pleasure of watching the station develop.

The vacant lot has undergone quite a transformation since the time you first thought to yourself, "That would make a good site for a service station." There is no going out of your way for service now. Everything your car needs—from gasoline and oil to accessories, lubrication, and other services—is available right in your own neighborhood.

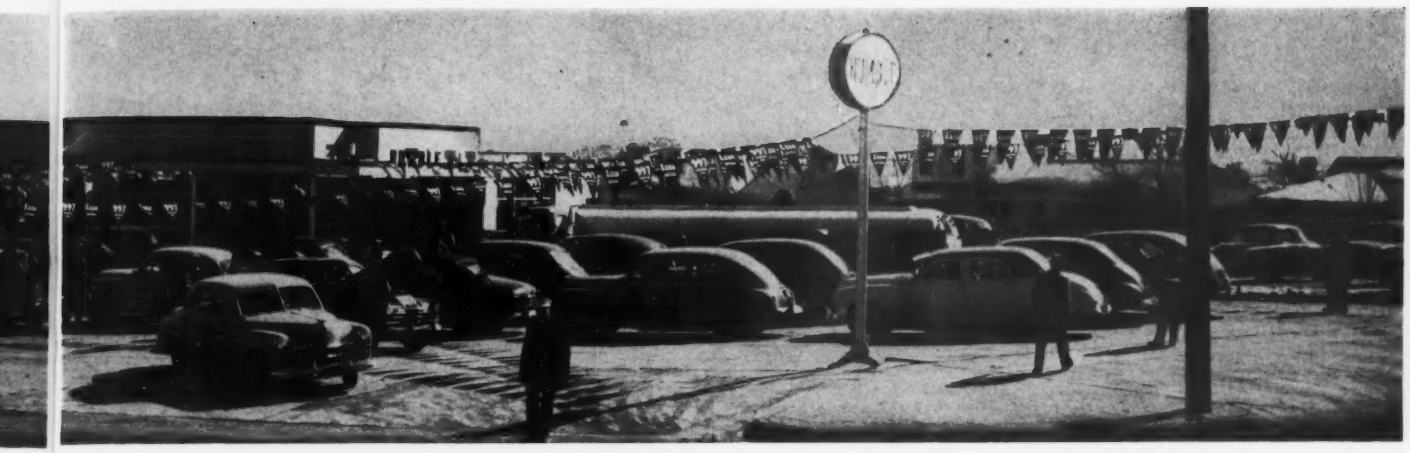
Such Humble openings have kindled a keen spirit of friendly competition among the Company's various sales divisions throughout Texas. More than once these openings have been occasions for civic pride.

Take, for example, the station that opened at Montrose and Alabama in Houston early in December, or the one at Fort Worth Avenue and Hampton Road in Dallas a month later. Both were the result of long planning, hard work, organized salesmanship, real showmanship, and public participation.

Records in Bad Weather

Rain fell all day long during the Houston opening, but the station set a new record for gasoline sold during

Gasoline tanks are installed according to the safety recommendations of the National Fire Prevention Board.



Opening day attracts hundreds of visitors to a new station; helps to acquaint them with Humble's way of doing business. This scene shows some of the Dallas motorists who helped set a new gasoline sales record.

a single day through a conventional type service station—18,311 gallons. The previous Humble record had been set in Odessa during September.

Undaunted, Dallas sales people said, "Now let's show them something." And they did—beating Houston's record by considerably more than 2,000 gallons. Bad weather was no handicap there, either. Dallas streets were covered with snow and ice, and the temperature wasn't much above zero. The sun came out for the opening, but the thermometer continued to hover around freezing.

These openings point up the tremendous progress that has been made in petroleum marketing during the past 40 years. "Filling stations," which first appeared around 1910, got pushed aside by the quickening pace of motor traffic along the road of progress which the oil industry has traveled. Today, they are as extinct as the Stanley Steamer.

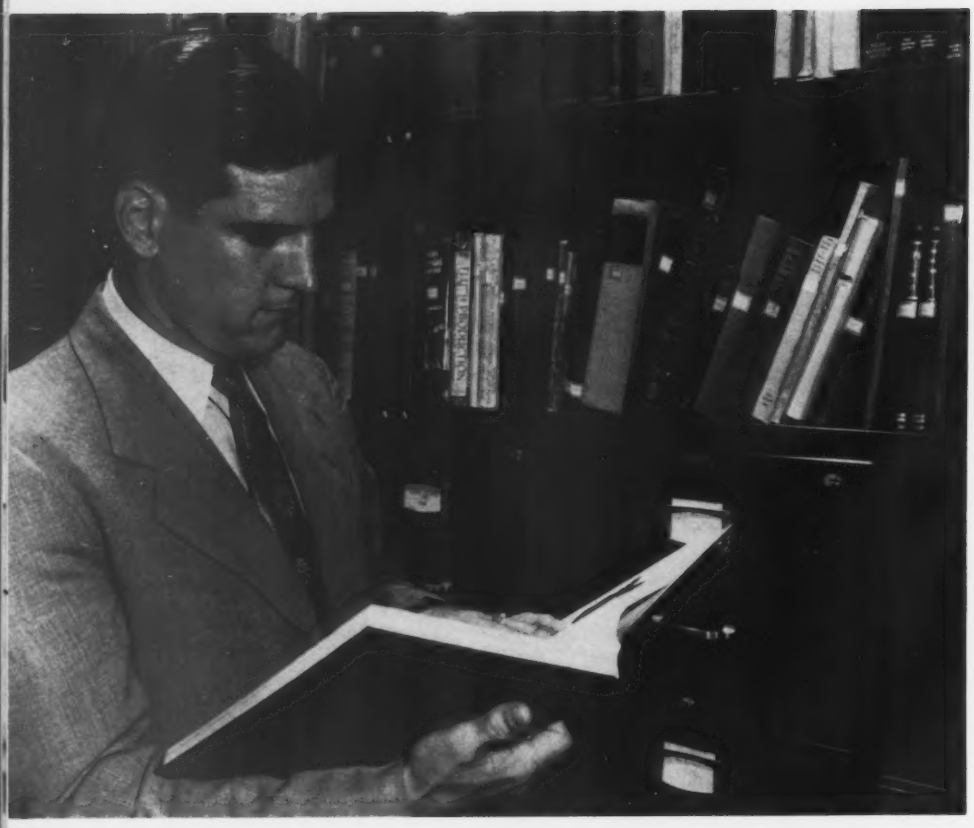
Community Store

The single pump and drum of oil that stood outside the feed store or blacksmith shop in grandpa's day has grown into a prospering business of its own. No longer does the motorist air his own tires, water his radiator from a bent tin can; no longer does he hear the friendly ribbing, "Get a horse!" Today, he finds the service station a sort of community or roadside department store where everything in the way of accessories, services, and supplies for an automobile may be had in one stop. He finds, too, that well-trained salesmen jealously guard the right to use the word "service" in service station. For these salesmen know that product quality alone will not keep customers coming back to their stations. To gain and hold the confidence of customers who entrust to them the proper care and servicing of their automobiles, salesmen must be constantly alert.

Humble doesn't just build a station and then forget it and its salesmen. Continuous training programs are carried on to help salesmen serve you better. Stations are inspected periodically by engineers in each division for needed repairs and painting which will be done in the most economical way, consistent with good judgment. Wherever possible, maintenance of equipment is handled by local mechanics.

Today's modern service station has, indeed, taken a definite and dignified place in American business. Often a thing of beauty as well as utility, it fits proudly into the pattern of community service.

Training programs teach station operators the proper care and protection of a customer's automobile; instructor points out details of charted lubrication.



Engineer seeks data from a directory in a Company library. Bottom: Researcher examines report recorded on microfilm, used by some Company libraries to secure special technical reports from United States Office of Technical Services.

SUPPOSE an engineer adds a new substance to a drilling mud. The substance, called an additive, makes drilling easier, safer, or more economical in certain formations. Has the additive been used before and can the new material for the mud be obtained more economically at other sources? The engineer wants to know. Also, he may wish the Company to get a patent on the formula.

If he likes, he can get some answers to these questions quickly with the help of a technical library, in this case the Production Research Library. Arrangement of information in its extensive abstract file enables him to note that more than 2300 articles have appeared on drilling muds since 1889. Hundreds of substances have been used as additives in drilling muds; these substances range from common table salt to pulverized feathers.

Formula to Patent Attorneys

Should the engineer not find his particular additive described in the literature, the library presents his formula to Company patent attorneys, who may make further search and apply for a patent. If the additive is described by other individuals, the engineer may not be able to get a patent, but he may get much helpful information from these authors.

Nine Company special libraries are making it easier for employees to get complete coverage of a variety of technical subjects. Putting knowledge to work is the aim of these libraries.

Our modern industrial progress moves today at a fast pace. Every

Books Are Tools

Company libraries gather, classify, maintain information to give complete coverage of a variety of technical subjects

alert employee by developing himself and increasing his usefulness helps keep his company up-to-date. He gains experience working on the job and making personal contacts, of course. But he gets extra help from technical reports, trade publications, and books.

Location of Libraries

For direct aid to Company personnel, there are in Houston organized libraries in geologic research, geophysical research, production research, petroleum engineering, law, and employee relations, including a branch in employee training. Libraries at Baytown Refinery include one in the Technical and Research Division and one in the Engineering Division. Each Company library is outstanding in its field.

Twenty-nine persons, working on a full-time or part-time basis, operate these Company libraries. Several of them are members of the American Library Association, Texas Library Association, and the Texas Chapter of the Special Libraries Association.

Company librarians maintain abstracts or brief descriptions of articles and patents. They index and catalog articles and books. They prepare bibliographies, review masses of literature and route selected material to interested persons. These librarians also scan book reviews and order needed literature. They provide a ready-reference service by making books, journals, and other data available for ready use by employees.

Book circulation in the Company libraries is similar to that in loan libraries. Unlike public libraries, the Company information centers are organized around special subjects and generally serve a restricted group. For instance, the Law Department Library includes textbooks, periodicals, and digests. Also, it has reporter systems containing written opinions of all state and Federal courts, state and Federal constitutions and statutes, and patent information for Company attorneys. The Employee Relations Library gathers information on benefit plans, training, labor relations, and other personnel subjects.

Of primary concern to librarians is supplying books and other references from which investigators can make exhaustive studies on special subjects of research.

Invaluable Records Kept

These libraries are reservoirs of information related to and affecting the oil industry. Humble librarians have stacked their shelves with invaluable records. Some of these data can be replaced only at great cost and in some cases not at all.

The Baytown Technical Library book custodians, for instance, have in their charge laboratory notebooks covering 25 years' research work at Baytown. Researchers have filled these notebooks with original data on projects carried out in their laboratories. The Engineering Division Library at Baytown maintains up-to-date catalogs from about 2600 companies as well as record drawings and specifications for all the operating equipment at Baytown Refinery. The Employees Relations Library receives each month about 409 items—research reports, proceedings periodicals, journals, and books.

A Company researcher, say in geology or refining, uses the library in a methodical way. When given a new and important assignment, he examines available written matter on the subject. He reads all information pertinent to the subject. Current publications are examined as they appear. The investigator gleans from this harvest of facts a background of information on which to build theories and practices. This search of the "prior arts" prevents repeating work previously done.

In addition to the several libraries, many department heads maintain bookshelves in easy reach of their employees. More and more reference shelves are being assembled in field offices. Numbers of individuals in the Company have a collection of books that fits on a desk or in a handy shelf.

Just as most Company tools and machines are too costly for an individual to own, these large collections of books, journals, and reports, available to all employees, are beyond the means of most of them.

Actually, books and other printed data are tools also. The work of the librarians helps individuals focus attention on subjects important to them. Also, the efforts of the librarians help employees contribute intelligently to their work and to their own improvement.

STEAM before cleaning

Safety precautions taken when big crude oil storage tanks given periodic clean-up

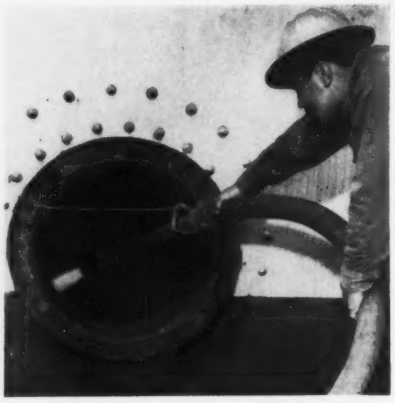
"SHE'S BLIND." The helmeted figure spoke tersely as he straightened, stepped back, and motioned to a helper. "Now let's steam her." A moment later he nodded his satisfaction at a low hissing sound.

One of the big storage tanks on a Humble Pipe Line Company tank farm was down for cleaning. Already, as much oil as possible had been pumped into the slop tank for temporary storage. Later, most of it would be processed and recovered. Blind flanges, round metal plates with no opening, were bolted on to the tank's lines to seal them off and make it impossible to pump oil either in or out—an important safety consideration because of possible fire hazards.

Gas tester makes frequent checks to be sure no gas remains in the tank.

After the tank was steamed to expel gases, the door sheets were removed for another pumping-out operation. Following this, tank cleaning specialists began playing streams of water under heavy pressure against the inner walls and floor of the tank to loosen sediment so that it, too, could be pumped out. This washing action also helped to remove gas vapors that might still be clinging to the sediment. Members of the crew were now ready to enter the tank to remove the remaining sediment, to finish the cleaning operation, and to check for needed repairs before putting the tank back into service.

The methods used are typical of those in practice throughout Humble Pipe Line Company's tank farm system where tanks are cleaned periodically when excess quantities of sediment have accumulated or when repairs are needed. No cleaning timetable is possible, of course, because no two jobs are just alike. Some tanks can go for a long time without being cleaned. Others, like energetic youngsters, just seem to get mussed up more easily.



High pressure stream of water loosens sediment; also helps remove stray gases.

The type of crude oil stored in a tank determines how much sediment will accumulate. Some oils are rather free of extraneous matter. But others may contain paraffin, sand, mud, emulsified oil—known to field men as B S & W (basic sediment and water)—or corrosion products such as the rust that comes out of pipe lines. When these conditions are severe, tanks must be cleaned oftener and varying lengths of time are needed to do the job.

All cleaning jobs have one thing in common, however. *Every possible safety precaution is taken.* Certain gases associated with petroleum products are poisonous if enough of them are breathed—particularly hydrogen sulfide, which is often fatal even when

Mopping up follows the steaming, washing, and scooping out operations. Sediment not previously removed is shoveled into wheelbarrows and dumped into a pit, then pumped to the slop tank. Tag indicates gas-free tank, but men wear masks.

breathed in small amounts inside a tank where there is less oxygen than there is outside. Also, sediment which appears to be gas-free may release vapors when it is stirred up.

Even though a tank is considered to be gas-free, there may be vapors underneath the floor. To remove these, water is pumped under the tank and is then drawn out by suction. Care is taken not to weaken the foundation. Tests are made each morning during the cleaning operation, oftener if considered necessary, to make sure that no gas is present. Sediment samples are analyzed for hydrogen sulfide and other gas content before members of the cleaning crew enter a tank. Gas masks are worn when necessary while working inside.

Besides hydrogen sulfide, which is poisonous, there may be explosive gases in the tank. This makes it necessary to inspect the area around the tank carefully for such fire hazards as broken lines, open lights, matches, smoking, rivet forges, burning pits or flares. Sparks from any kind of electric equipment, even static electricity within or near the tank, may result in explosions and sudden death. Yet, despite the hazardous nature of the job, Humble's safety record through the years has been outstanding.

Simply stated, tank cleaning demands that all crew members know exactly what they are doing and understand fully the penalties of carelessness.

Scoop equipped tractors remove most of the sediment from the tank when it has been declared gas-free.

Mobile First Aid

Humble families are offered opportunity to learn first aid

Vic Spurlock, first aid instructor, prepares training kit for field class.

FOR the past year and a half Humble employees and their families in field communities have had the opportunity to learn the fundamentals of first aid right in their own back yards. A complete first aid training course has been offered, and will continue to be offered, to employees in field operations by a qualified instructor from the Safety Division.

A specially equipped panel truck makes this training possible. The mobile unit is completely outfitted with first aid supplies, safety equipment, and teaching aids which include: a public address system, movie and slide projectors, a screen, charts, and first aid instruction material.

In five two-hour sessions a complete first aid course is given to those who wish to attend. Classes are held at the convenience of the employees, and normally the entire course can be completed in a week. The instruction covers basic schooling in first aid with additional emphasis on the use of safety and fire protection equipment.

Ultimately the unit will reach all field locations and every employee will have the opportunity to attend the classes. The instructor has traveled 40,000 miles in the past 20 months. To date he has covered the West Texas and Louisiana Divisions and is now completing the Southwest Texas Division. He will cover the Gulf Coast, East Texas and North Texas Divisions in completing the course.

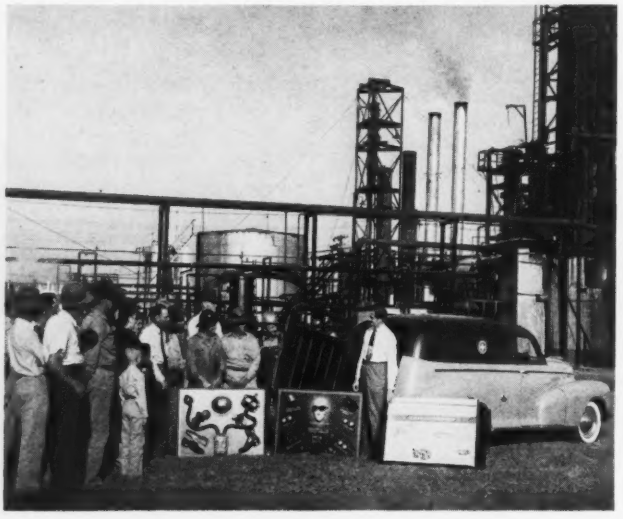
Through February 1, 1950, a total of 2,135 Humble people were issued Company first aid certificates, signed by the president of Humble Oil and Refining Company or Humble Pipe Line Company, as the case may be.

On these cards is a statement which summarizes the importance of this course:

"Your training in First Aid is an invaluable asset. The correct use of first aid principles in times of emergency can well save a life or reduce the seriousness of an injury—both at home and at work."

Prone pressure method of artificial respiration is demonstrated by a member of the San Antonio Refinery class.

Display boards and charts from first aid truck help in teaching the use of modern safety and fire prevention equipment.



THEY HAVE RETIRED

William E. Jones, right, receives gift certificate from his fellow employees through J. F. Stovall upon retirement.

SINCE the last report in these columns, eight long-time employees of the Humble Companies have retired, all but one of them with more than 20 years' service.

Humble Pipe Line Company—William E. Jones, pipeliner at Hearne, retired on December 5 after more than 25 years' service. All of his service has been at Hearne where he started as a laborer, then became a line walker, and finally a pipeliner. He plans to operate a cafe near Hearne and also devote time to his favorite sport—deer hunting.

Production Department—Walter H. Patterson, pumper and gauger at London, retired on January 26 after more than 22 years' service. He was employed at Powell as a pumper, and later worked at Hurdle, Yates, and Arp before moving to London. At one time he played semi-pro baseball, and has retained his interest in that sport. Fellow workers presented him with household and personal gifts at a retirement party. He plans to truck farm in East Texas.

Houston Office—Frances C. Bringhurst, special stenographer in the Building Manager's Office, retired on January 9 after almost 29 years' service. She began with Humble in the Purchasing Department, and later worked with Humble Pipe Line Company's Purchasing Department, and in the Refinery Engineering Department before transferring to the Building Manager's Office.

Turner A. Miller, janitor in the Building Maintenance Department, retired on January 11 after more than 21 years' service. He first went to work with Humble Pipe Line Company and served in various capacities throughout Texas. Later he was a pumper and roustabout in the Production Department at Raccoon Bend and Thompsons. He plans to settle in central Florida.

Baytown Refinery—Preston P. Gillard, blacksmith helper, retired on December 29 after more than 22 years' service. Always a good team worker, he began with the Refinery as a riveter and caulker, and later worked on various boilermaking jobs. He plans to contract small carpentry jobs, and also devote time to gardening, raising chickens and pigeons.

Ellis D. Luke, helper, retired on December 1 after more than 23 years' service. Keenly interested in civic affairs, he has contributed a great deal of his personal time to worthwhile projects in Baytown for many years. He has also perfected a tool cart for use at cracking coils in the Process Division of the Refinery. Now he will devote more time to his gardening and canning of home-grown vegetables.

Albert O. Reeves, field clerk, retired on December 14 after more than 28 years' service. He personally ordered most of the electrical equipment from storehouse stock that has been used in nearly all of the old buildings throughout the Refinery.

Wise

Reeves

Patterson

Miller

Luke

Gillard

Fellow employees presented him a television set upon his retirement. His special interests are flowers, gardening, fruit growing, and the raising of blooded livestock.

Gordon G. Wise, helper first class, retired on December 6 after more than 16 years' service. With the exception of a year and a half at the San Antonio and Ingleside Refineries, his Company service has all been at Baytown Refinery. He began as a temporary laborer and later worked as a pumping and gauging helper, compressorman, and process helper. Fellow employees presented him a televison set upon his retirement.

By the way...

Record CYI Quarter

Employees who had time and money saving suggestions accepted by the Central "Coin-Your-Ideas" Committee during the fourth quarter of 1949 were awarded a total of $8,675. Of this amount, $7,600 was paid for 178 initial awards on 165 suggestions, and $1,075 was paid for 14 supplemental awards on 13 suggestions.

Refining Department employees profited most during this unusually productive idea period. They earned $4,995 for 124 awards on 113 suggestions. Five supplemental awards on four suggestions brought them an additional $425.

Production Department employees received $1,460 for 33 awards on 33 suggestions, and $325 for seven supplemental awards on seven suggestions.

Nine Houston Office employees were paid $845 for eight suggestions, and one employee got a supplemental award of $150.

Humble Pipe Line Company employees came in for $175 on eight awards for seven suggestions, and another $175 for one supplemental award.

A total of $125 was paid to four Sales Department employees on four suggestions.

Deaths

SINCE the last issue of THE HUMBLE WAY, eight active employees and four annuitants have died.

Active employees who have died are: MORGAN O. BENNETTE, 61, machinist first class at Baytown Refinery, on December 25; OLDEN NEWTON, 37, special laborer at Baytown Refinery, on December 24; JOEL C. OTT, 48, district superintendent LD at Lovell Lake District, on January 2; WILLIAM R. REGAN, 61, machine shop foreman at Conroe District, on December 26; WILLIAM A. SLAGLE, 53, helper first class at Baytown Refinery, on December 27; JAMES G. SPRINGFIELD, 56, plant protection guard at Baytown Refinery, on December 15; STANLEY S. STINSON, 64, division chief scout at Midland, on January 9; and JESSE LEE WILDER, 62, checker at Baytown Refinery, on December 22.

Annuitants: HOLLAND E. BELL, 73, title lawyer in the Law Department, Houston, before his retirement, died on December 9; ERNEST DUHON, 66, roustabout at Lovell Lake District before his retirement, died on December 24; RAYMOND E. SWARTZ, 67, janitor in the Building Maintenance Department, Houston Office, before his retirement, died on December 1; and GILBERT Y. VIDRINE, 67, district gauger at Baytown Pipe Line Station before his retirement, died on January 10.

Best Safety Record

In 1949 the Humble Companies had the lowest accident frequency rates in their history. A 25 per cent reduction from 1948 made possible the low rate of 4.61—the number of disabling injuries per million man hours worked.

The chief factor contributing to this record was a 42 per cent reduction in the Production Department's accident frequency rate. Within that department, drilling operations with a 48 per cent reduction held a position of leadership.

A complete discussion of the record and an analysis of the progress in safety over the years will appear in the March-April issue of THE HUMBLE WAY.

Framing size reproductions of the colorful Jackson Lee Nesbitt tempera paintings appearing on the cover and on Pages 14-15 may be had for the asking. Please address requests to The Editor, THE HUMBLE WAY, P. O. Box 2180, Houston, Texas, and allow one week for handling and mailing.

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Weather man scans radar screen for signs of rain squalls, other disturbances at Humble's Grande Isle base. Radar warnings have been valuable to offshore operations.

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ons.

We have more tools now....

ALL the things we use to make our work easier and more productive are tools—not only hand tools, but storage tanks, gasoline plants, pipe lines, drilling rigs, cars and trucks, typewriters, leases, and thousands of other tools an oil company needs to do its job.

Today we have more tools than ever before, because Humble continues to invest a large portion of profits to provide them.

In 1949, Humble spent $126 million for this purpose. For every employee in the Company that is an increase in the value of his tools of about 14 percent in one year. That raised the total investment by the Company to $56,140 for each man and woman employed.

HUMBLE OIL & REFINING COMPANY